# SmartDG+ Data Layer List

*This document provides brief descriptions and source information for each layer on the SmartDG+ website. Users interested in the nature of GIS data underlying a layer should consult the SmartDG+ Final Report, which is available on the SmartDG+ home page.*

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**Abandoned Mine Lands**

Category: Specific Sites to Consider

Source: U.S. Environmental Protection Agency's (EPA's) RE-Powering America's Land Initiative

Description: This data layer consists of RE-Powering screened sites, which have been tracked through EPA remediation and grant programs. Abandoned mines could present developers with opportunities for the siting of renewable energy (RE) projects.

**Airport and/or Landing Strip (with 3-mile buffer)**

Category: Standard Screens

Source: Federal Aviation Administration's (FAA's) National Airspace Systems Resources (NASR) Aeronautical Data Product

Description: This data layer contains aircraft landing facilities in the State of Maryland. Since commercial-scale wind turbines can interfere with radar activity at airports, wind farms are discouraged within three miles of an airport.

**Brownfields**

Category: Specific Sites to Consider

Source: Maryland Department of the Environment (MDE) Land Restoration Program (LRP)

Description: This data layer contains any property that has been under the purview of LRP at any time; it is possible that properties within this dataset have already been redeveloped, or had minor contamination that has been resolved. RE projects offer a potential redevelopment opportunity for brownfields.

**Coal Combustion Byproduct Storage Sites**

Category: Specific Sites to Consider

Source: MDE and the Maryland Department of Natural Resources (DNR) Power Plant Research Program (PPRP)

Description: This data layer contains coal combustion byproduct (CCB) storage sites tracked by MDE and DNR. These storage sites could represent possible redevelopment opportunities.

**County Parks**

Category: Standard Screens

Source: DNR

Description: The County Parks data layer consists of land areas that are run and maintained by county and municipal authorities.

**County Protected Areas**

Category: Additional Screens

Source: County Agencies

Description: This data layer contains lands that are protected at the county level due to their environmental importance; the layer overlaps in part with the "County Parks" data layer. Note that this layer is not comprehensive; it only includes data from counties that offered it to PPRP.

**County Zoning – Solar**

Category: Additional Screens

Source: County Agencies

Description: This data layer is a compilation of county zoning areas and their solar ordinances. When this layer is turned on, it "whites out" zones where county ordinances are intended to prohibit any 1-10 MW solar facility. In other zones, restrictions may still apply. Either a county's Board of Supervisors and/or the Maryland Public Service Commission (PSC) may opt to supersede county zoning in certain circumstances.

**County Zoning – Wind**

Category: Additional Screens

Source: County Agencies

Description: This data layer is a compilation of county zoning areas and their wind ordinances. When this layer is turned on, it "whites out" zones where ordinances are intended to prohibit any 1-10 MW wind facility. In other zones, restrictions may still apply. Either a county's Board of Supervisors and/or the Maryland PSC may opt to supersede county zoning in certain circumstances.

**Critical Areas**

Category: Standard Screens

Source: DNR

Description: The Critical Areas data layer contains all land and water areas within 1,000 feet of the tidal waters' edge or from the landward edge of adjacent tidal wetlands and the lands under them.

**Current Wind and Solar Projects (1+ MW)**

Category: N/A

Source: PPRP

Description: This data layer is updated biannually based on Certificate of Public Convenience and Necessity (CPCN) filings, PJM data, and county correspondence.

**Electrical Distribution Lines (with buffers)**

Category: Standard Screens

Source: PPRP

Description: These data layers show 1- or 2-mile corridors surrounding high-voltage electric distribution lines that PPRP has judged robust enough to absorb up to a 3-MW generation project. Note that lines in population centers near Washington, D.C. and Baltimore were not assessed. While these areas have ample electrical infrastructure, small lot sizes and high land values functionally preclude wind or solar projects of between 1 and 3 MW, except in brownfield locations.

**Electrical Transmission Lines (with buffers)**

Category: Standard Screens

Source: PPRP

Description: These data layers show 2- or 4-mile corridors surrounding high-voltage electric transmission lines. Note that lines in population centers near Washington, D.C. and Baltimore were not assessed. While these areas have ample electrical infrastructure, small lot sizes and high land values functionally preclude wind or solar projects of between 1 and 10 MW, except in brownfield locations.

**Federal Properties**

Category: Standard Screens

Source: DNR

Description: This data layer consists of land areas that are run and maintained by federal government authorities. Developers should be aware of the locations of these lands when considering RE project development.

**Floodplains**

Category: Standard Screens

Source: Federal Emergency Management Agency (FEMA)

Description: This data layer was obtained from FEMA and represents the 100-year flood zone. Developers should be aware of the location of floodplains when considering a site for RE project development.

**Forest Conservation Easements**

Category: Standard Screens

Source: DNR, with submittals from county agencies

Description: This data layer represents data maintained by DNR that comes from reporting by local authorities of conserved and planted forest areas (as required by the Forest Conservation Act of 1991). These areas are not available for RE project development.

**Forested Lands**

Category: Additional Screens

Source: Maryland Department of Planning (MDP)

Description: This data layer is based on land-cover types generalized using 2007 National Agriculture Imagery Program (NAIP) aerial imagery, and parcel information from the 2008 Edition of MDProperty View. Forested areas are shown because such areas present significant barriers to wind or solar projects above 2 MW. Specifically, many RE developers avoid forested areas given the expense of cutting, clearing, and in some cases, planting substitute trees, as required by Maryland's Forest Conservation Act.

**Gas Transmission Lines (with buffers)**

Category: Standard Screens

Source: Platts

Description: This data layer is based on a 2-mile-wide corridor surrounding gas transmission lines; assumed to be the maximum distance a developer would consider for a CHP project (up to 10 MW). As with electric lines, developers typically limit the length of gas interconnection lines to not more than two miles, due to construction costs and rights-of-way issues.

**High-density Residential Areas**

Category: Standard Screens

Source: MDP

Description: This data layer is based on land cover types generalized using 2007 NAIP aerial imagery and parcel information from the 2008 Edition of MDProperty View. High-density residential areas do not lend themselves to 1+ MW RE projects due to space constraints.

**Landfills**

Category: Specific Sites to Consider

Source: U.S. Environmental Protection Agency's (EPA's) RE-Powering America's Land Initiative

Description: This data layer consists of RE-Powering screened sites, which have been tracked through EPA remediation and grant programs. Landfills commonly have large open areas that may not be suitable for commercial or residential development, and have a history of being redeveloped for solar energy projects.

**MD Agricultural Land Preservation Foundation Easements**

Category: Additional Screens

Source: DNR

Description: The Maryland Agricultural Land Preservation Foundation (MALPF), within the Maryland Department of Agriculture, is charged with preserving farmland. This data layer is based on data that were digitized from the Maryland Department of Assessment and Taxation (DAT) parcel maps. MALPF easements present significant barriers to wind or solar projects between 1 and 10 MW. Specifically, a developer must seek permission to build RE projects, based on certain requirements issued by the MALPF.

**MD Environmental Trust Easements**

Category: Standard Screens

Source: Maryland Environmental Trust (MET)

Description: This data layer represents MET conservation easements across MD. There are restrictions related to development on conservation easements.

**MD Heritage Areas**

Category: Additional Screens

Source: Maryland Historical Trust (MHT)

Description: This data layer represents places formally designated as "heritage areas;" these areas receive targeted financial and technical assistance to promote, sustain, and create place-based experiences for visitors and the community. These areas may require further research by the developer to determine whether there are any limitations associated with this designation.

**MD Historical Trust Preservation Easements**

Category: Standard Screens

Source: MHT

Description: The MHT manages historical preservation easements on behalf of Maryland; more than 650 easements cover more than 9,200 acres statewide. These sites would not make good candidates for RE development due to possible restrictions.

**NAS Patuxent River Protected Areas**

Category: Additional Screens

Source: Naval Air Station Patuxent River (NAS Pax River)

Description: NAS Pax River serves as a testing center for naval aviation systems, including radar systems, and is surrounded by a buffer zone. Numerous state and federal laws have been passed in recent years to prevent wind turbines from interfering with Pax River activities; flare from solar systems is also a concern addressed by the protected areas.

**National Register of Historic Places**

Category: Standard Screens

Source: MD Historical Trust

Description: This data layer includes 1,300 listings in Maryland, including 200 historic districts that are on the National Register of Historic Places. These sites would not make good candidates for RE development due to possible restrictions.

**Prime Farmland Soil**

Category: Additional Screens

Source: Natural Resources Conservation Service (NRCS)

Description: The prime farmland data layer consists of those areas that fit the NRCS criteria for soil quality. Siting a solar project in an area with prime farmland soil may draw controversy, and is a factor to consider during project development.

**Private Conservation Properties**

Category: Standard Screens

Source: DNR

Description: The Private Conservation Properties data layer was created for DNR planning purposes and is a collection of properties that are protected from development by ownership of a private conservation group or society. These sites would not make good candidates for RE development due to possible restrictions.

**Resource Conservation and Recovery Act Sites**

Category: Specific Sites to Consider

Source: EPA's RE-Powering America's Land Initiative

Description: The data layer for the Resource Conservation and Recovery Act (RCRA) sites consists of RE-Powering screened sites that have been tracked through EPA remediation and grant programs. RCRA sites could present developers with opportunities for the siting of RE projects.

**Rural Legacy Properties**

Category: Standard Screens

Source: Rural Legacy Program

Description: This data layer consists of properties that have been protected using Rural Legacy funds. These sites would not make good candidates for RE development due to possible restrictions.

**Scenic Byways**

Category: Additional Screens

Source: Maryland Department of Transportation, State Highway Administration

Description: This data layer represents corridors that embody archaeological, cultural, historic, natural, recreational, and/or scenic qualities that community sponsors and government agencies deem worthy of preserving and promoting. Sites in these areas would need to be further researched to determine whether RE development is an option.

**Superfund Sites**

Category: Specific Sites to Consider

Source: EPA's RE-Powering America's Land Initiative

Description: This data layer consists of RE-Powering screened sites, primarily extracted from the EPA's National Priorities List. Superfund Sites could present developers with opportunities for the siting of RE projects.

**Urban Areas with Limited Open Space**

Category: Standard Screens

Source: MDP

Description: This data layer is used to show the highly populated areas around Baltimore and Washington, D.C. The Baltimore area follows the Baltimore Beltway (I-695), while the D.C. area follows the Capital Beltway (I-495). These urban areas are viewed as a barrier to RE construction due to the limited open space.

**Wastewater Treatment Plants**

Category: Specific Sites to Consider

Source: MDE

Description: This data layer represents wastewater treatment plants in Maryland. These sites may lend themselves to the development of DG projects, as they could have large open areas that may not be suitable for commercial or residential development.

**Wetlands of Special State Concern (with 100-foot buffer)**

Category: Standard Screens

Source: DNR

Description: This data layer represents areas covered under the Code of Maryland Regulations for special protection. These sites would not make good candidates for RE development due to restrictions.

**Wind Speed at 100 Meters**

Category: Standard Screens

Source: U.S. Department of Energy's (DOE's) National Renewable Energy Laboratory (NREL)

Description: This data layer is based on average annual wind speeds at 100 meters, the height at which many commercial-scale wind turbine blades are now mounted. Areas with wind speeds under 5.5 meters per second were judged to be unsuitable for large wind turbines. The data for this layer were developed by AWS Truepower on behalf of DOE.